Wildlife Response Modeling

Goal To accurately forecast wildlife population responses to multiple interacting stressors of both natural and human origins.

Approach

- ➔ Model construction
- ➔ Problem formulation
- ➔ Forecasting
- ➔ Evaluation
- ➔ Feedback

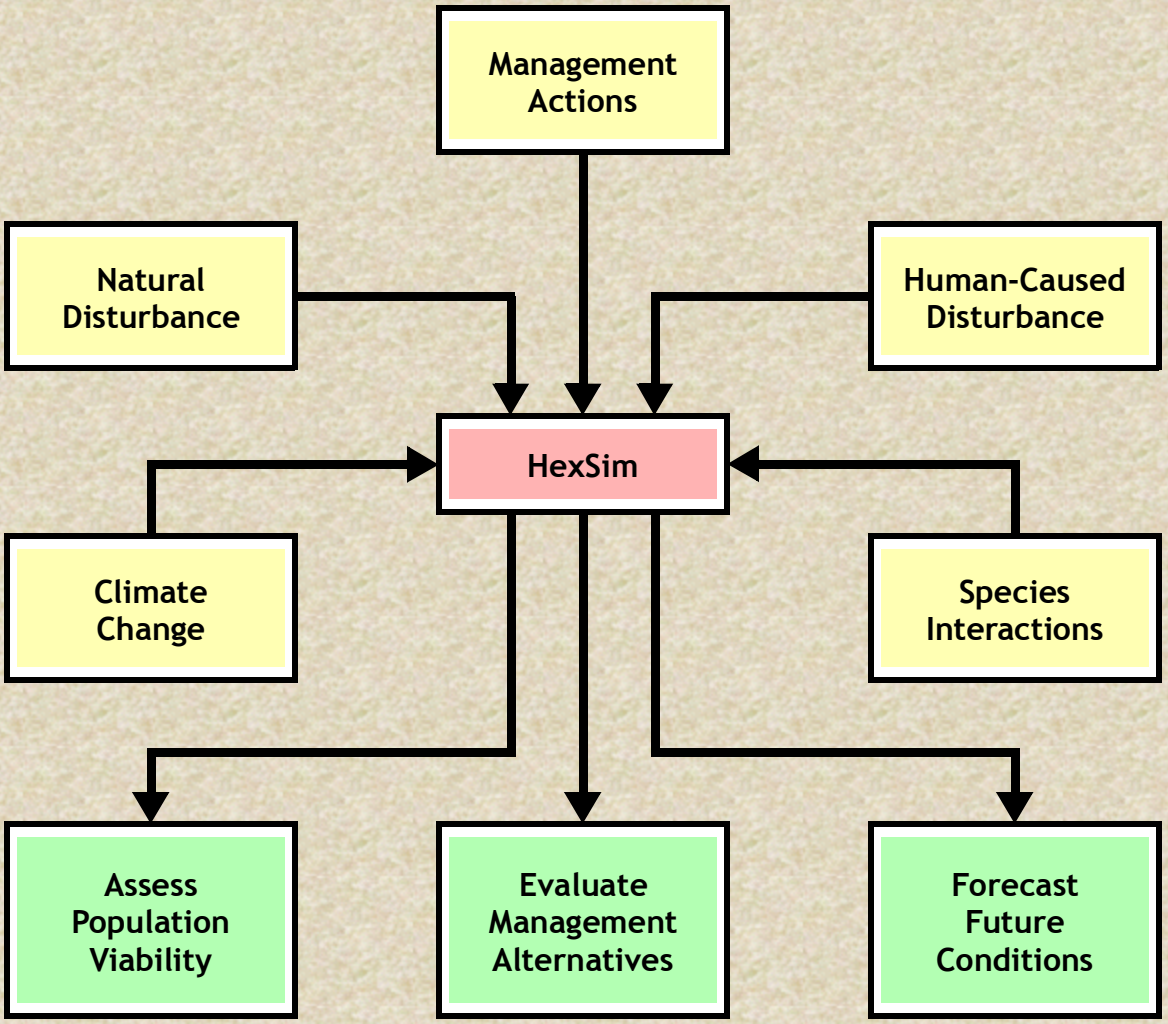
Significant Challenges

- **Landscapes.** They are dynamic; structure matters; features change with life history
- **Populations.** They have complex, diverse life histories, and can interact
- **Disturbance.** Can vary in space and time; there can be multiple; they often interact
- **Analysis.** Has to be useful for verification while also appropriate for decision support

What is HexSim?

- It is a computer simulation model.
- It was designed for evaluating wildlife population responses to human activities.
- It is modern and sophisticated, but flexible and easy to use.
- It can be used with a large range of places, problems, and questions.

What Can HexSim Do?



Key Model Applications

- **WESP Project.** **Being used to develop wildlife response sub-models for Envision**
- **ESRP Human Health & Biodiversity.** **Forecasting spread of zoonotic diseases**
- **Pesticide Regulations.** **Forecasting pesticide impacts on wildlife populations**
- **Green Infrastructure.** **Supporting EPA's efforts to improve urban planning**

Relevance to ORD Paradigms

Integrated Transdisciplinary Research

Linkages Include: fate and effects research ❖ planning actions and species' viability ❖ human health and biodiversity ❖ urban growth and connectivity

Sustainability

Research Areas: climate change ❖ disease spread ❖ green infrastructure ❖ integrated pest management